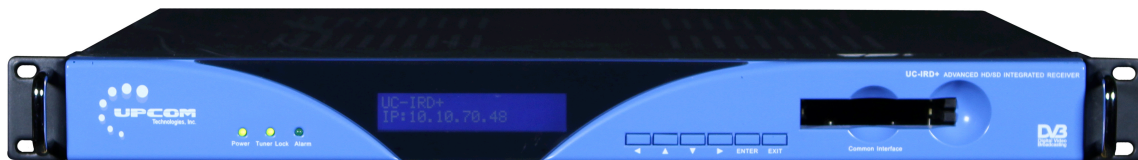




UC-IRD+ MULTI-MODE RECEIVER / DECODER



USER MANUAL

UPCOM TECHNOLOGIES INC.

www.upcom.com

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UC-IRD+ MULTI-MODE RECEIVER / DECODER

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Warnings, Cautions and Notes

Heed Warnings

All warnings on the product and in the operating instructions should be adhered to. The manufacturer cannot be held responsible for injuries or damage where warnings and cautions have been ignored or taken lightly.

Read Instructions

All the safety and operating instructions should be read before this product is operated.

Follow Instructions

All operating instructions should be followed.

Retain Instructions

The safety and operation instructions should be retained for future reference.

Who should use this manual

This manual is written for operators/users of the UC-IRD+ Professional Integrated Receivers / Decoders. It describes the unit's functions and operation.

Technical specifications

Upcom's advanced HD/SD Integrated Receivers are designed with ease of use and reliability in mind. Most advanced features found as optional on other receivers come as standard on UPCOM's line.

The Satellite Receiver

The UC-IRD+ interfaces directly to the Low-Noise Block (LNB) and accepts frequencies in L band (950-2150MHz). The unit can also provide DC power to the LNB.

Front of the Unit



Back of the Unit



Summary of Features

- Multiple inputs: DVB-S/S2, TS/IP and ASI.
- Redundant inputs among Tuner, ASI and TS/IP inputs.
- SD/HD MPEG-2 and MPEG-4/H.264 digital video decoding.
- Dual Audio PIDs decode or pass through.
- Multiple Analog and Digital Outputs: ASI, CVBS, YPbPr, HDMI, SD/HD-SDI, AES/EBU Audio, TS/IP.
- Flexible re-multiplexing among 2xASI, Tuner and TS/IP Inputs.
- 2x DVB-CI Slots, Multi Programs, BISS-1 and BISS-E decryption.
- Dynamic PMT detection and automatic updating.
- Support VBI TELETEXT, EBU/DVB Subtitle, and Closed Captioning.
- UDP/RTP, Unicast/Multicast, and SPTS/MPTS over IP (full duplex).
- Remote Control and Supervision by SNMP and HTTP WEB Interface.
- Compressed audio pass-through in SDI output.
- PCM audio embedded in SDI and HDMI outputs.
- PCM audio output on two AES/EBU audio output ports.
- Remote software update through IP.
- RSSI, received Eb/No & BER monitoring.

Specifications:

DVB-S2 Demodulation

Input Frequency Range	950~2150MHz
Input Level	-25~-65dBm
Input Impedance	75Ω
Connector	F-type female
Symbol rate	2~45MBauds for QPSK 2~31MBauds for 8PSK
Roll-off factor	0.35 for QPSK 0.35, 0.25, 0.2 for DVB-S2
FEC Code Rate	DVB-S QPSK : 1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 8/10 DVB-S2 8PSK : 3/5, 2/3, 3/4, 5/6, 8/9, 9/10
LNB Polarity Selection Voltage	0, 13V, 18V selectable
LNB Band Selection Tone	0/22KHz selectable
Satellite Selection Command	DiSEqC 1.0

TS Processing:

TS Input Management	Remux and demux among Tuner, ASI and TS/IP Inputs
TS Output Management	Remux and demux for 2 independent ASI outputs
Service and PID management	Remux, filtering and remapping
PSI/SI	PSI/SI table regeneration, NIT and SDT edition, LCN Edition and Re-generation
Descrambler	DVB Common Scrambling Algorithm (CSA)
BISS Mode	BISS-1, BISS-E
Common Interface	Double PCMCIA slots, compatible with major CA CAMs in the market

ASI Output:

Connector Type	2 x BNC female, 75Ω
Standard	DVB-ASI, EN50083-9
Standard HDMI	1x HDMI 1.3 interface (up to 1080i)
Video Resolution and Frame Rate	1080i x 30, 1080i x 29.97, 1080i x 25, 720p x 60, 720p x 59.94, 720p x 50, 480p x 60, 576p x 50, 576i x 25, 480i x 29.97
Audio Embedded	2x stereos or compressed data pass through

Digital Video Processing:

Video Standard	MPEG-2(MP@ ML for SD, MP@HL for HD) MPEG 4/H.264 AVC Part 10 (MP@L3 for SD, HP@L4.1 for HD)
SDI Video Resolution	1080i x 30, 1080i x 29.97, 1080i x 25, 720p x 60, 720p x 59.94, 720p x 50, 576i x 25, 480i x 29.97
Video PID Bit Rate	< 80Mb/s

HD/SD SDI Output:

Connector Type	2x HD/SD-SDI mirrored outputs, BNC Female, 75Ω
SD format	SMPTE 259M, 270 Mb/s (10bit)
HD format	SMPTE 292M, 1.485 Gbit/s (10bit)
Level	800mV p-p

Digital Audio Processing:

Connector Type	2 x D-sub 9 male with XLR adaptor cables
Number of Output	2 x audios are decoded or passed through*
Sampling Rate	32, 44.1 and 48 KHz
Audio Bit Rate	32, 64, 96, 128, 160, 192, 224, 256, 288, 320, 352, 384, 416 and 448 kb/s for MPEG-1 Layer I
Output Level	1V p-p
Output Format	AES/EBU
Load Impedance	110Ω (with XLR adaptor cable)

Analog Video Output:

YPbPr Connector	1 set of RCA female, 75Ω
CVBS Connector	1 x BNC female 75Ω, 1 x RCA female 75Ω
Video Standard	NTSC, PAL, and SECAM
YPbPr Resolution	1080i x 30, 1080i x 29.97, 1080i x 25, 720p x 60, 720p x 59.94, 720p x 50, 480p x 60, 576p x 50, 576i x 25, 480i x 29.97
Signal Level	1.0 Vp-p±5%
Frequency Response	<±1 dB, at 5.5 MHz for PAL/SECAM, 4.2MHz for NTSC and 15MHz for HD YPbPr
Chroma-Luma Delay	<±30 ns
Field Time Distortion	<2%
Line Time Distortion	<1%
Short Time distortion	<2%
Differential Gain	<3%
Differential Phase	<2°
Signal to Noise Ratio	>55dB (luminance weighted)

Analog Audio Output:

Connector type	2 x D-sub 9 male, with XLR adaptor cable
Output Impedance	600Ω (balanced)
Output mode	Left, Right, Dual Mono, Stereo
Number of Output	2 pairs of stereo audio outputs (2 Audio PIDs are decoded).

Ancillary Data Processing:

Subtitle	DVB, EBU
VBI	Teletext, WSS, VFD, VPS

Closed Caption	EIA 608, EIA 708, EIA 608-to-708
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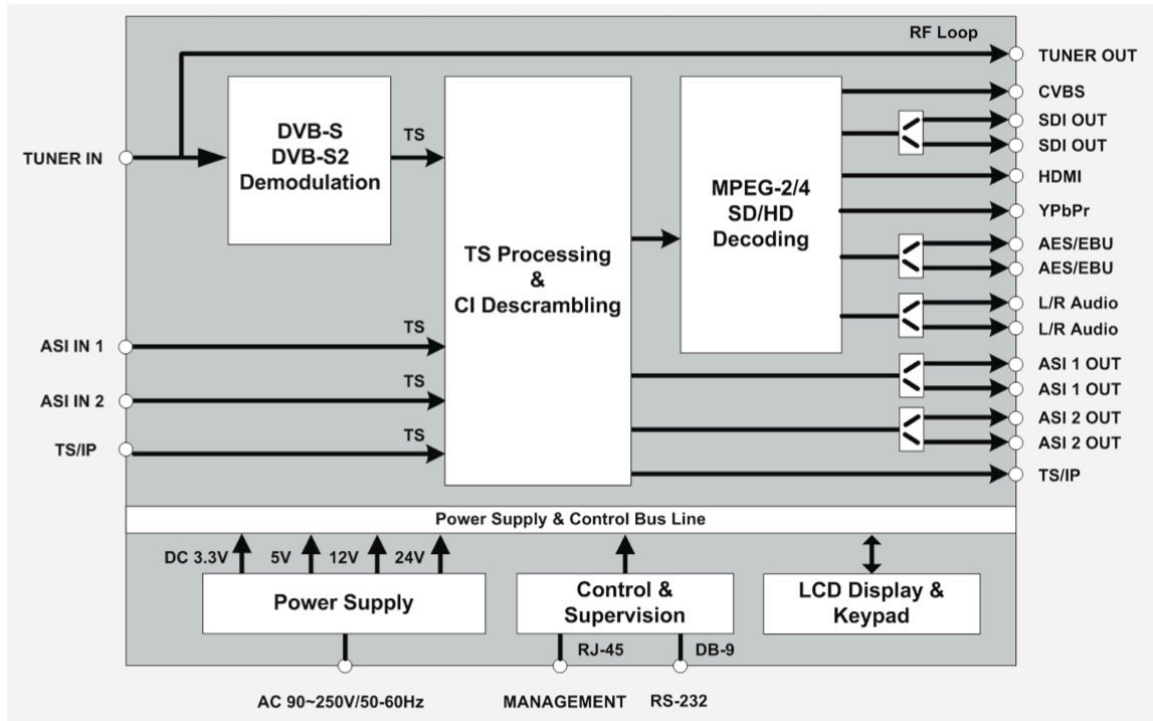
Redundancy:

Redundancy Port	Among Tuner, 2 x ASI inputs and TS/IP
Switching Condition	TS Sync Loss
Switching Mode	Main, Spare

Certification:

EMC	EN 55024:1998+A1:2001+A2:2003, EN 55022:2006+A1:2007, EN 61000-3-2:2006, EN 61000-3-3:2008
FCC	Part 15 Class B
LVD	EN 60950-1:2006 + A11:2009

Block Diagram:



Powering On The Equipment

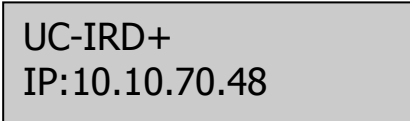
Switching On

The UC-IRD+ is designed to work within 90 to 260V AC and 50/60 Hz. The power switch is located on the device's rear panel immediately next to the power cord connector. Setting the switch to "I" powers on the unit.

Caution: This unit should not be operated unless the cooling fan is working and there is free air flow around it.

Front Panel Display

The front panel contains a 2x20 character LCD screen. After boot up is finished, the front panel will display the following information. The first line consists of the assigned system name while the second line displays the assigned IP address of the device.



```
UC-IRD+  
IP:10.10.70.48
```

Front Panel Menu Structure and Navigation

The operation menu has four levels (See Annex A). The Main Menu has three sections (Input, Output & System Settings).

Selecting a Menu Option

To navigate the menu items users will use the UP, DOWN, LEFT and RIGHT pushbuttons on the front panel of the UC-IRD+. To select a menu option or navigate a sub menu user must press the "ENTER" button. To return one menu level or cancel changes press the "EXIT" button.

The parameters of a menu can be changed as follows:

1. Press "ENTER" to navigate a menu, sub-menu or to begin edit mode.
2. Use the UP, DOWN, LEFT and RIGHT pushbuttons to select a parameter to edit. After making changes, press "ENTER" to save new settings.
3. Press "EXIT" to return to the previous level menu.

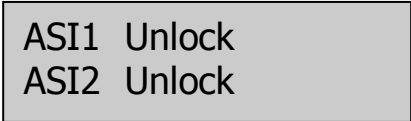
Front Panel Operation

System Status

This menu will display the general status of the system.

Navigation Sequence:

Press "ENTER" to navigate the "INPUTS" menu, selecting "Status" press "ENTER". The screen will display the following:



ASI1 Unlock
ASI2 Unlock

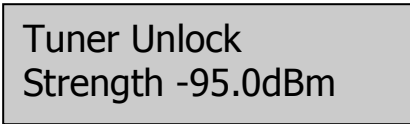
This menu is for information purposes only; parameters cannot be changed here. Use the UP and DOWN pushbuttons to navigate through the status for ASI1, ASI2, TUNER and IP IN inputs.

Received Signal Strength Indicator (RSSI)

This menu allows you to check the inbound signal strength.

Navigation Sequence:

Press "ENTER" to navigate the "Inputs" menu, selecting "RSSI" press "ENTER". The screen will display:



Tuner Unlock
Strength -95.0dBm

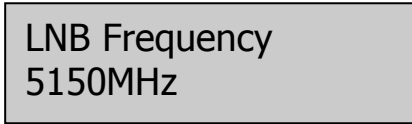
This is for information only; parameters cannot be changed on this menu. Use the UP and DOWN pushbuttons to navigate through the signal quality sub-menus of the DVB-S/S2 signal.

Tuner Configuration (DVB-S2)

This menu allows you to configure the Satellite Tuner. The transmission signal parameters must be known before starting. Please contact your satellite provider if you do not have this information.

Navigation Sequence:

Press "ENTER" to navigate the "Inputs" menu, selecting "DVB-S2" press "ENTER". The display will show:



LNB Frequency
5150MHz

There are multiple settings to configure on this menu:

LNB Frequency: The input LNB Frequency (Also known as Local Oscillation Frequency).

Satellite Frequency: The downstream frequency of the satellite.

Symbol Rate: The input symbol rate for the stream.

LNB Voltage: The voltage that will be sent through the F-Connector to the LNB. Please select the correct option: Off, 13V, 18V.

LNB 22KHz: To activate the 22KHz control signal to the LNB. Options are: On, Off.

DiSEqC: To activate or deactivate DiSEqC support. Options are: OFF/Port A/Port B/Port C/Port D.

PLS Gold Code: Six-digit decimal Physical Layer Signaling.

Frequency Offset High: Set the frequency offset for fine auto-tuning. Range is 1000~5000KHz.

Frequency Offset Low: Set the frequency offset for fine auto-tuning. Range is -5000KHz~-1000KHz.

Configuring Inbound TSIP

This menu allows you to configure the TS/IP port as an input if activated in System -> Optional Function sub-menu. The parameters must be known before starting. Please contact your TSIP stream provider if you do not have them.

Navigation Sequence:

Press "ENTER" to navigate the "Inputs" menu, selecting "Ethernet" press "ENTER". The display will show:

Stream IP Address
16.16.16.16

There are multiple settings to configure on this menu:

Stream IP Address: Enter the IP address assigned to the IRD's TS/IP Ethernet port.

Stream Netmask: Enter the network netmask for the IP address assigned to your equipment TS/IP Ethernet port.

Stream Gateway: Enter the gateway address for the IP address assigned to your equipment TS/IP Ethernet port.

Stream MAC Address: The Factory-Set MAC address assigned to the TS/IP Ethernet port.

Multicast IP Address: Enter the multicast IP address of the Transport Stream source. When the device is configured to receive an IP stream, this field should be set to the device's own Stream IP port address. This field can also be used for unicast addresses.

Multicast UDP Port: Enter the UDP port of the Transport Stream source.

Protocol: Select the multicast protocol: UDP or RTP.

Output Smoothing: Set the quality of the Transport Stream that arrives to the TS/IP input port.

Auto: Automatically detects the bit rate.

Disable: Transport Stream is not modified.

Fixed Rate: Uses a fixed bit rate.

Configuring The Common Interface (De-Scrambling)

This menu allows you to configure the Common Interface for inbound De-Scrambling.

NOTE: Configure either the Satellite Inbound or Ethernet Inbound first and make sure the input is locked to use it as your CI Source.

Navigation Sequence:

Press "ENTER" to navigate the "Outputs" menu, select "CI" then press "ENTER". The display will show:



CI Source
1-TUNER

There are multiple settings to configure on this menu:

CI Source: Select the input source for the CI module. The options are: Tuner, ASI1, ASI2, IP input (If the TS/IP port is set to "IP in" on System - > Optional Function).

Setup: Here you may select the program to be de-scrambled. Un-scrambled programs are marked as "free". Three different statuses could be set for each program:

Slot 1: Use the upper CAM to De-Scramble.

Slot 2: Use the lower CAM to De-Scramble.

Bypass: Do not De-Scramble the stream.

The status will display on the first row of the screen. Confirm the selected setup before leaving the sub-menu.

The De-Scrambled stream will be ready to be used for the other functional blocks (Decoder, ASI1, ASI2, SDI, Mux and TS/IP Output).

CAM name: Shows the names of the CAM modules.

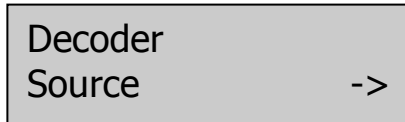
Configuring the A/V Decoder

This menu allows you to configure the output of the UC-IRD+.

NOTE: All the other configurations must be completed first (BISS, CI, and Input settings).

Navigation Sequence:

Press "ENTER" to navigate the "Outputs" menu, selecting "Decoder" press "ENTER". The display will show:



There are multiple settings to configure on this menu:

Source: Select the input source of the baseband output ports. The transport stream will be sent to all the output ports on the rear panel of the equipment with exception of the ASI1 and ASI2 ports (which are configured independently). There are six possible sources:

Tuner: The input stream from the satellite tuner will be sent to the output ports of the device.

ASI1 Input: The input stream from the ASI1 IN Port will be sent to the output ports of the device.

ASI2 Input: The input stream from the ASI2 IN Port will be sent to the output ports of the device.

Mux TS: The input stream from the internal Mux functional block will be sent to the output ports of the device. *NOTE: The Mux must be enabled within menus System > Optional Function for this option to appear.*

BISS De-Encrypted: The input stream from the BISS functional block will be sent to the output ports of the device.

CI De-Encrypted: The input stream from the CI functional block will be sent to the output ports of the device.

IP: The input stream from the TS/IP Port will be sent to the output ports of the device. *NOTE: If activated as input in System -> Optional Function.*

Program: Select the program that the UC-IRD+ has detected within the stream. Choices depend on the source you have selected.

Video: This sub-menu allows you to define the video options.

Video: Select the video settings from the available options:
 Auto/1920x1080i 60/1920x1080i 50/1280x720p
 60/1280x720p 50/720x480p 60/720x576p 50/525x480i
 60/625x576i 50 for the composite video output.

Screen: Select the screen mode from the available options:
Auto, 4:3 Full, 4:3 Letterbox, 16:9 Full.

DVB Subtitle Lang: Select the language of the DVB subtitles.

EBU Subtitle Lang: Select the language of the EBU subtitles.

Subtitle Priority: Select which subtitle has higher priority.

Fail Mode: Select the behavior when the signal fails.
Available options are: Black Screen, No Sync or Still Picture.

Closed Caption: Select to enable or disable Closed Captioning from the stream. This option controls CC on CVBS and SDI output ports.

VBI Mode: Select to enable or disable the Vertical Blanking Interval mode. This option only controls CC on CVBS. To activate CC over CVBS enable VBI mode.

CVBS SUB PAL: Select the PAL mode. Options are: PAL-B/D/G/H/I, PAL-N, PAL-N_C, and SECAM.

CVBS SUB NTSC: Select the NTSC mode. Options are: NTSC-M, NTSC-M_J, NTSC-M_443, and PAL-M.

NOTE: The sub-menus VBI Mode, CVBS Sub PAL and CVBS Sub NTSC will only appear when the Closed Caption option is on.

Audio: This sub-menu allows you to define the audio settings.

Audio 1 Level: Set the audio level from 0 to 99.

Audio 1 Mode: Set the audio mode. The available options are: Stereo, Left, Right, Mono.

Audio 1 Priority: Select the priority of the audio detected in the stream.

Audio 2 Level: Set the audio level from 0 to 99.

Audio 2 Mode: Set the audio mode. The available options are: Stereo, Left, Right, Mono.

Audio 2 Priority: Select the priority of the audio detected in the stream.

HDMI/AES Embedded: Select how to embed the audio on HDMI. The possible options are: PCM or Compressed. Select Compressed to allow HDMI Dolby pass-through, otherwise select PCM.

Status: Displays the status of the decoder including PMT, PN, A/V, Video and Audio.

Mode: Select the program selection mode. The possible options are: Manual Selection or First Service.

A/V Alarm Switch: This sub-menu allows you to activate the audio and video alarms.

Video alarm: Disable or Enable the video alarm.

Audio Alarm: Disable or Enable the audio alarm.

Configuring the ASI Outputs

This menu will allow you to configure the ASI output ports of the UC-IRD+.

NOTE: All the other configurations must be completed first (BISS, CI, and Input configurations).

Navigation Sequence:

Press "ENTER" to navigate the "Outputs" menu, selecting "ASI1" or "ASI2" press "ENTER". The display will show:

ASI 1 Source ASI2 Input

In this menu you will choose the incoming source of the stream. The possible options are: Tuner, IP, CI De-Encrypted, ASI Input, BISS De-Encrypted, and Mux TS.

CI De-encrypted: The de-encrypted transport stream from CI functional block will be delivered to the ASI output port.

TUNER: The transport stream from Tuner block will be delivered to the ASI output port.

ASI1 Input: The transport stream received from ASI1 input port will be delivered to the ASI1 output port.

ASI2 Input: The transport stream received from ASI2 input port will be delivered to the ASI2 output port.

Mux TS: The transport stream coming from internal Mux functional block will be delivered to the ASI output port. *(NOTE: The Mux TS is a valid option only when the Mux function block is enabled under System -> Optional Function)*

Configuring the SDI Outputs

This menu will allow you to configure the SDI outputs on the UC-IRD+.

NOTE: All the other configurations must be completed first (BISS, CI, and Input settings).

Navigation Sequence:

Press "ENTER" to navigate the "Outputs" menu, selecting "SDI" press "ENTER". The display will show:



Embed Audios
ON

There are multiple settings to configure within this menu:

Embed Audios: Options are ON or OFF.

Closed Caption Mode: The closed caption mode needs to be selected based on the video resolution. SMPTE 708 and SMPTE 608 are most suitable for HD Video, whilst Line 21 is best for SD Video. When Auto is selected, the unit will choose SMPTE 608 for HD video, and Line 21 for SD video. *NOTE: Before configuring, be sure to enable the Closed Caption switch within the menus Decoder->Video->Closed Caption.*

AC-3 Pass Thru CH: Select the channel for AC-3 audio pass through. Options are: Channels 3-4 or Channels 5-6.

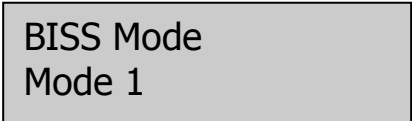
Configuring the Basic Interoperable Scrambling System (BISS)

These menu options will allow you to configure the BISS on the UC-IRD+.

NOTE: All the other configurations must be completed first (CI, and Input settings). You must get the BISS settings from your provider.

Navigation Sequence:

Press "ENTER" to navigate the "Outputs" menu, selecting "BISS" press "ENTER". The display will show:

A rectangular box with a black border containing the text "BISS Mode" on the top line and "Mode 1" on the bottom line.

There is one setting to configure on this menu:

BISS Mode: Select the correct BISS Mode to use with the Transport Stream. The possible options are: Mode 0 (NO BISS), Mode 1 (BISS 1) and Mode E (BISS E).

Depending on the selection of BISS Mode made you will subsequently have different options to choose from:

BISS Source: Select the BISS source from ASI1, ASI2, Mux TS and Tuner. *(Available in Mode 0,1 & E).*

Mode 1 Key Enter: Set BISS 1 key *(available in Mode 1).*

Mode E Key Enter: Set BISS E, ID number and key (*available in Mode E*).

Program Setup: Press the "ENTER" key to navigate the 'Program Setup' sub-menu. It shows all programs detected by the UC-IRD+. If there is no TS input, the front panel will read "0-TS Invalid". (*Available in Modes 1 & E*).

Configuring the internal MUX

This menu will allow you to configure the internal Multiplexer on the UC-IRD+.

NOTE: This option will only be available if it is enabled within menus System->Optional Function. All the other configurations must be done first (BISS, CI, and Input configurations).

Navigation Sequence:

Press "ENTER" to navigate the "Outputs" menu, selecting "Mux" press "ENTER". The display will show:



Mux Switch
On

There are multiple settings to configure within this menu:

Mux Switch: Select whether the internal multiplexer is On or Off.

Bit Rate: Set the stream bit rate. Be aware that it should be within the limits of the physical medium you're using otherwise overflows can occur.

Output Bit Rate: Select the output Bit Rate.

TS Id: Set the TS ID to mark the multiplexed stream. The default value is 1.

Program List: This sub-menu allows you to create a list of programs to "pass" to the output. The programs could come from the ASI , Tuner,

TS/IP or the Internal CI De-Encryption block inputs. Using the "Mux List" sub menu to select the programs to be multiplexed, selected programs labeled "Pass" will be included in the mux output. The un-selected programs are to be labeled "Forbid". Use the ENTER pushbutton to select or un-select the programs. When satisfied with selections press the Menu pushbutton to exit the sub-menu. A confirmation message will ask: "Confirm changed?" Press the ENTER pushbutton to save your changes or EXIT to leave without saving.

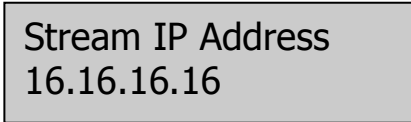
Configuring Outbound Ethernet Streaming

This menu will allow you to configure the TS/IP port on the UC-IRD+ as a Stream Source for another device.

NOTE: This option only will be available if it is enabled on menus System -> Optional Function. All other configurations must be completed first (BISS, CI, and Input settings).

Navigation Sequence:

Press "ENTER" to navigate the "Outputs" menu, selecting "Ethernet" press "ENTER". The display will show:



Stream IP Address
16.16.16.16

There are multiple settings to configure on this menu:

Stream IP Address: Enter the IP address assigned to your equipment TS/IP output Ethernet port.

Stream Netmask: Enter the network netmask for the IP address assigned to your equipment TS/IP output Ethernet port.

Stream Gateway: Enter the gateway address for the IP address assigned to your equipment TS/IP output Ethernet port.

Stream MAC Address: The Factory-Set MAC address assigned to the TS/IP output Ethernet port.

Gateway MAC Address: The MAC address of the configured Gateway.

Protocol: Set the protocol for uni\multicast. The possible options are UDP or RTP.

TS Pkts per UDP: Set the number of the TS packets encapsulated in one UDP packet. Valid range is from 1 to 7.

Time to Live: Set the number of router hops over which the TS over IP can be delivered. The valid range is from 1 to 5.

Type of Service: Select the type of service. The possible options are: Normal, Min Monetary Cost, Max Reliability, Max Throughput or Min Delay.

Source: Select the source of the stream to be encapsulated over IP. There are 6 possible sources:

1. ASI1 Input
2. ASI2 Input
3. CI De-Encrypted
4. TUNER
5. Mux TS (Only available if it is enabled)
6. BISS De-Encrypted

Mode: Select the mode of IP Streaming. The valid options are DVB or IPTV.

DVB Mode: The transport stream from the source will be directly sent as an IP stream. The IP stream will include all the programs and will be sent to the specified multicast or unicast IP Address.

IPTV Mode: The transport stream from the source is de-Muxed into individual programs and each one is packed into a different IP stream. Each IP stream carries only one program. There is a maximum of 6 IPTV channels allowed.

Uni/Multicast Setup: This sub-menu will allow you to configure the Unicast or Multicast settings. It offers different options depending on the mode selected.

For DVB Mode

Multicast IP: Set the IP address of the TS over IP. It can be configured as a Multicast or Unicast stream.

To use multicast mode set the IP address within the Multicast IP range (224.0.0.0 to 239.255.255.255) as defined by RFC 5771.

To use Unicast mode use any valid IP address that is not in the range 224.0.0.0 to 239.255.255.255. If the IP address is set to an IP address outside of this range the stream will be Unicast even though the display shows "Multicast IP". In Outbound Unicast mode the IP address that is set is the one of the specific destination IP.

Multicast UDP Port: Enter the UDP port number of the TS over IP.

For IPTV Mode

Max Channels (≤ 6): Set the number of IPTV channels. The valid range is 0 to 6.

Once the number of channels is set, there will be a sub-menu for each channel. Each channel sub-menu has 4 options:

Channel X: Where "X" is the number of the channel.

x-Switch: Turn the channel On or Off.

x-Uni/Multicast IP: Set the IP address of the TS over IP. It can be configured as a Multicast or Unicast stream.

To use multicast mode set the IP address within the Multicast IP range 224.0.0.0 to 239.255.255.255 as defined by RFC 5771.

To use Unicast mode use any valid IP address that is not in the range 224.0.0.0 to 239.255.255.255. When the IP address is set to an IP address outside of this range the stream will be Unicast even though the display shows "Multicast IP". In Unicast mode the IP address that is set is the one of the destination

x-Uni/Multicast Port: Set the UDP port number for the TS over IP.


x-Program: Select the program to use from the previously selected source. Encrypted programs are labeled with a "\$" sign.

Configuring the UC-IRD+ Management Port

This will allow you to configure the Ethernet management port on the UC-IRD+.

Navigation Sequence:

Press "ENTER" to navigate the "System" menu, selecting "Local Setup" press "ENTER". The display will show:



IP Address
10.10.70.48

There are multiple different settings to configure on this menu:

IP Address: Set the IP address for the management port.

Network Mask: Set the network mask for the IP address assigned to the equipment.

Gateway: Set the Default Gateway for the IP address assigned to the equipment.

Configuring the Web Interface

This will allow you to configure the Web Interface on the UC-IRD+.

Navigation Sequence:

Press "ENTER" to navigate the "System" menu, select "HTTP Login" then press "ENTER". The display will show:



HTTP Login
Login ID

There are multiple different settings to configure on this menu:

Login ID: Set the username for the Web Interface. Use all 8 characters. Afterwards, press Enter then Exit.

Login Password: Set the password for the Web Interface. Use all 8 characters. Afterwards, press Enter then Exit.

NOTE: Ensure the login ID and password are different from each other.

Once you have set up the Login ID and Password you can use your preferred browser and go to <http://ird.ip.address> (default: 10.10.70.48). Use your Login ID and Password to login. Please see the Web Operation section for details.

Find the unit software versions

This will allow you to see the installed firmware versions on the device.

Navigation Sequence:

Press "ENTER" to navigate the "System" menu, selecting "Properties" press "ENTER" once more. The display will show:

Main Version 51PR0056

Use the UP and DOWN pushbuttons to navigate and find the software versions on your device.

Reset the UC-IRD+ to Factory Default Configuration

This will allow you to clear all the settings on the UC-IRD+ and return it to a Factory Default Configuration state.

Navigation Sequence:

Press "ENTER" to navigate the "System" menu, selecting "Factory Settings" press "ENTER". The display will show:

Factory Settings?
ENTER=YES EXIT=NO

To reset the unit to the default settings press the ENTER pushbutton, to abort the operation and leave the unit with the existing settings press the EXIT pushbutton.

Web Interface

Make sure you have already configured your HTTP Login ID, Password, and management port using the front panel before trying to configure the UC-IRD+ through the web interface.

Home Page:

Use your preferred browser and go to <http://ird.ip.address>. Use your Login ID and Password to login. Once you gain access, you will see:

UC-IRD+ - 192.168.0.60 - Status

Style: White

Status

Tuner

CI

Decoder

Output

BISS

TS over IP

System

Output Status

Normal

Video: OK

Audio: OK

PMT PID 256 Program Number 1

Audio1 PID 4352 Audio2 PID

Video PID 4113

Input Status

Display ☒ ASI1 ☒ ASI2 ☒ Tuner ☒ IP

ASI1

Total Bit Rate (Mbps) 39.999536 Packet Size (Bytes) 188

Valid Bit Rate (Mbps) 0.000000

ASI2

Total Bit Rate (Mbps) Packet Size (Bytes)

Valid Bit Rate (Mbps)

Tuner

Total Bit Rate (Mbps) 3.146368 Strength (dBm) -8.0

Valid Bit Rate (Mbps) 1.525032 Packet Size (Bytes) 188

C/N (dB) 30.9 BER (dB) 0.0e-8

Eb/No (dB) 26.1

IP

Total Bit Rate (Mbps) 1.520544 Packet Size (Bytes) 188

Link Status 100M

Auto Refresh

Frequency Every 20 seconds

Status Refresh

This is the Status page. It shows the status of your interfaces, and gives information about the existing interface connections.

Setting Up Satellite Inbound (DVB-S2)

This menu allows you to configure the Satellite Receiver. The parameters must be known before starting configuration. Please contact your satellite provider if you don't have the required settings.

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UC-IRD+ - 192.168.0.60 - Tuner

Style: White

Status

Tuner

CI

Decoder

Output

BISS

TS over IP

System

DVB-S2

LNB Frequency (MHz)

5150

Satellite Frequency (MHz)

6150

Symbol Rate (KBaud)

1748

LNB Voltage

OFF

LNB 22KHz

OFF

DiSEqC

DiSEqC OFF

PLS Gold Code

0

Frequency Offset High (KHz)

5000

Frequency Offset Low (KHz)

-5000

Apply

Cancel

There are multiple different settings to configure on this menu:

LNB Frequency: The input LNB Frequency.

Satellite Frequency: The downstream frequency of the satellite.

Symbol Rate: The input symbol rate for the incoming stream.

LNB Voltage: The voltage that will be sent through the F-Connector to the LNB. Please select the correct option: Off, 13V, 18V.

LNB 22KHz: Activates the LNB 22KHz control signal. Options are: On, Off.

DiSEqC: To activate or deactivate DiSEqC support. Options are: OFF/Port A /Port B / Port C / Port D.

PLS Gold Code: Six-digit decimal Physical Layer Signaling

Frequency Offset High (KHz): Set the frequency offset for fine auto-tuning. Range is 1000~5000KHz.

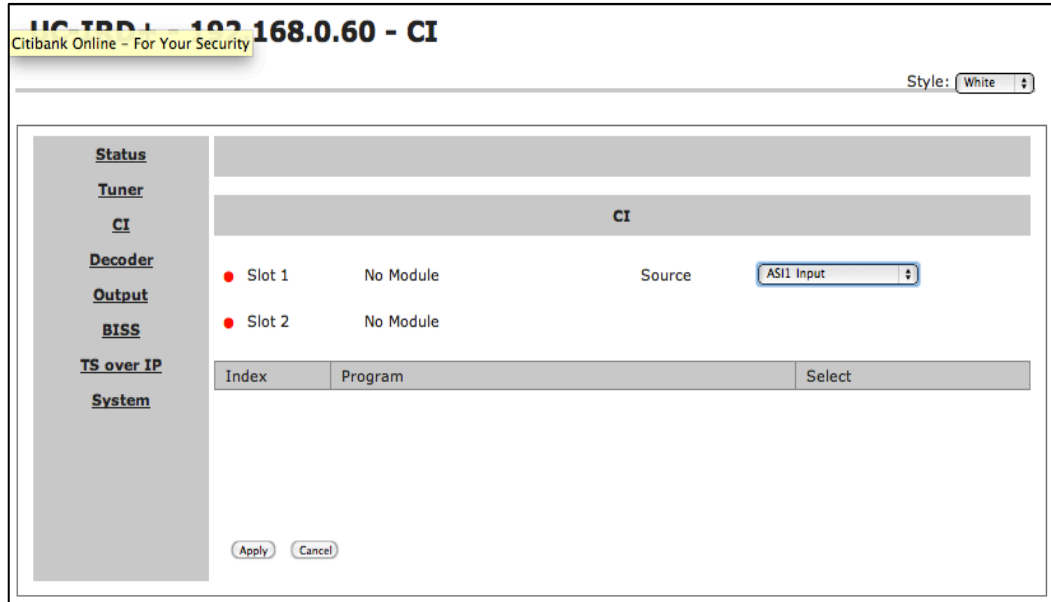
Frequency Offset Low (KHz): Set the frequency offset for fine auto-tuning. Range is -5000~-1000KHz.

Setting Up the Common Interface (De-Scrambling)

This menu allows you to configure the Common Interface for inbound De-Scrambling.

NOTE: Configure either the Satellite Inbound or Ethernet Inbound first and make sure the input is locked to use it as your CI Source.

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The screenshot shows the UC-IRD+ web interface. At the top, it displays 'UC-IRD+ 192.168.0.60 - CI' and a security warning from Citibank Online. A 'Style' dropdown is set to 'White'. On the left is a navigation menu with options: Status, Tuner, CI, Decoder, Output, BISS, TS over IP, and System. The 'CI' option is selected. The main content area has a 'CI' header. Below it, there are two rows for Slot 1 and Slot 2, each with a red dot, 'No Module', and a 'Source' dropdown menu currently set to 'ASI1 Input'. At the bottom, there is a table with columns 'Index', 'Program', and 'Select'. Below the table are 'Apply' and 'Cancel' buttons.

There are multiple different settings to configure on this menu:

CI Source: Select the input source for the CI module. The options are: Tuner, ASI1, ASI2, and IP-input (if the TS/IP port is set to "IP in" on System -> Optional Function).

Setup: Programs will be shown from the stream to be selected. Select the program to be de-scrambled. Un-scrambled programs are marked as "free". Three different statuses could be set for each program:

Slot 1: Use the upper CAM to De-Scramble.

Slot 2: Use the lower CAM to De-Scramble.

Bypass: Do not De-Scramble the stream.

The status will show up on the first row of the screen. Confirm the selected setup before leaving the sub-menu.

The De-Scrambled stream will be ready to be used for the other functional blocks like the Decoder, ASI1, ASI2, SDI, Mux and TS/IP Output.

Setting Up the A/V Decoder

This menu allows you to configure the output of the UC-IRD+.

NOTE: All the other configurations must be done before (BISS, CI, and Input configurations).

UC-IRD+ - 192.168.0.60 - Decoder

Style: White

[Status](#)
[Tuner](#)
[CI](#)
[Decoder](#)
[Output](#)
[BISS](#)
[TS over IP](#)
[System](#)

Audio Video Decoder Play

Program Selection

Source Tuner
Current Program Retro TV
Program List

Retro TV

Mode

Decoder Mode Manual Selection

A/V Alarm Switch

Video Alarm Enable
Audio Alarm Enable

Apply Cancel

There are multiple different settings to configure on this menu:

Source: Select the source of the output. The output will be sent to all the output ports on the back of the equipment with exception of the ASI1 and ASI2 ports which can be configured independently.

There are 7 types of signal sources:

Tuner: The input stream from the satellite tuner will be sent to the outputs on the back of the device.

ASI1 Input: The input stream from the ASI1 IN Port will be sent to the outputs on the back of the device.

ASI2 Input: The input stream from the ASI2 IN Port will be sent to the outputs on the back of the device.

Mux TS: The input stream from the internal Mux functional block will be sent to the outputs on the back of the device.
(NOTE: The Mux must be enabled and configured for this option to show up).

BISS Decrypted: The input stream from the BISS functional block will be sent to the outputs on the back of the device.

CI Decrypted: The input stream from the CI functional block will be sent to the outputs on the back of the device.

IP: The input stream from the TS/IP Port will be sent to the outputs on the back of the device. *NOTE: If activated as input on System->Optional Function.*

Program: Select the program that the UC-IRD+ has detected from the stream. It depends on the source you have selected before.

Video: This sub-menu allows you to define the video options.

UC-IRD+ - 192.168.0.60 - Video

Style: White

Status Tuner CI Decoder Output BISS TS over IP System	Audio Video Decoder Play	
	Video Output	
	Video Standard	Auto
	Screen	Auto
	DVB Subtitle Language	Off
	EBU Subtitle Language	Off
	Subtitle Priority	DVB First
	Fail Mode	Black Screen
	Close Caption	OFF
	VBI Mode	Disable
CVBS SUB PAL	PALBDGHI	
CVBS SUB NTSC	NTSCM	
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>		

Video: Select the video settings from the available options: Auto, 576I 25, 480I 29.97, 576P 50, 480P 60, 720P 50, 720P 60, 1080I 25, 1080I 30.

Screen: Select the screen mode from the available options: Auto, 4:3 Full, 4:3 Letterbox, 16:9 Full.

DVB Subtitle Lang: Select the language of the DVB subtitles.

EBU Subtitle Lang: Select the language of the EBU subtitles.

Subtitle Priority: Select which subtitle has higher priority.

Fail Mode: Select the failure sent when the signal fails.
Available options are: Black Screen, No Sync or Still Picture.

Closed Caption: Select to enable or disable the CC from the stream.

VBI Mode: Select to enable or disable the vertical blanking interval mode.

CVBS SUB PAL: Options are: PALBDGHI, PALN, PALN_C, SECAM.

CVBS SUB NTSC: Options are: NTSCM, NTSCM_J, NTSCM_443, PALM.

Audio: This sub-menu allows you to define the audio options.

UC-IRD+ - 192.168.0.60 - Audio

Style: White

Status Tuner CI Decoder Output BISS TS over IP System	Audio Video Decoder Play	
	Audio1 Output	
	Audio Level	<input type="text" value="49"/>
	Audio Mode	Stereo
	Audio Priority	una 4352/mpeg1
	Audio2 Output	
	Audio Level	<input type="text" value="49"/>
	Audio Mode	Stereo
	Audio Priority	una 4352/mpeg1
	HDMI/AES Embedded	
HDMI/AES Embedded	PCM	
SDI Output		
Embedded Audio	OFF	
Closed Caption Mode	Auto	
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>		

Audio 1 Level: Set the audio level from 0 to 99

Audio 1 Mode: Set the audio mode. The available options are: Stereo, Left, Right, Mono.

Audio 1 Priority: Select the priority of the audio detected on the stream.

Audio 2 Level: Set the audio level from 0 to 99

Audio 2 Mode: Set the audio mode. The available options are: Stereo, Left, Right, Mono.

Audio 2 Priority: Select the priority of the audio detected on the stream.

HDMI/AES Embedded: Select how to embed the audio on HDMI. The possible options are: PCM or Compressed.

SDI Embedded Audio: Select to embed the audio on SDI. The possible options are: On, Off.

SDI Closed Caption Mode: Select the closed caption mode on SDI.

Status: Displays the status of the decoder including PMT, PN, A/V, Video and Audio.

Mode: Select the program selection mode. The possible options are: Manual Selection or First Service.

A/V Alarm Switch: This sub-menu allows you to activate the audio and video alarms.

Video alarm: Options are: Disable or Enable.

Audio Alarm: Options are: Disable or Enable.

Sending the stream to the ASI outputs

This will allow you to configure the ASI outputs on the back of the UC-IRD+.

NOTE: All the other configurations must be done first (BISS, CI, and Input configurations).

UC-IRD+ - 192.168.0.60 - Output

Style: White

[Status](#)
[Tuner](#)
[CI](#)
[Decoder](#)
[Output](#)
[BISS](#)
[TS over IP](#)
[System](#)

Output

ASI1 Output
Source ASI1 Input

ASI2 Output
Source ASI1 Input

There is only one option on to choose at this level: the source of the stream. The possible options are: Tuner, IP, CD De-Encrypted, ASI Input, BISS De-Encrypted, and Mux TS.

Setting up BISS

This will allow you to configure the BISS on the UC-IRD+.

NOTE: All the other configurations must be done first (CI, and Input configurations). You must get the BISS settings from your provider.

UC-IRD+ - 192.168.0.60 - BISS Mode

Style: White

[Status](#)
[Tuner](#)
[CI](#)
[Decoder](#)
[Output](#)
[BISS](#)
[TS over IP](#)
[System](#)

BISS Mode

BISS Program

BISS Mode

BISS Mode

Mode 0

Mode 1

Key

.....

Mode E

ID

.....

Key

.....

Apply

Cancel

There are multiple different settings to configure on this menu:

BISS Mode: Select the correct BISS Mode to use with the TS. The possible options are: Mode 0, Mode 1, and Mode E.

Depending on the selection of BISS Mode you will have different options to choose:

If you choose Mode 0 the only available option is the source.

If you choose Mode 1 you will need to navigate the BISS Mode 1 Key, then you must choose the source and the program to De-Scramble.

If you choose Mode E you must navigate the ID & Key, then choose the source and finally select the program. The options will change depending on the selections you make.

A few seconds after the correct configuration is selected the A/V signals will be sent to the connectors on the back of the device.

Configuring the internal MUX

This will allow you to configure the internal MUX on the UC-IRD+.

NOTE: This option only will be available if it is enabled on System->Optional Function. All the other configurations must be done first (BISS, CI, and Input configurations).

UC-IRD+ - 192.168.0.60 - Mux

Style: White

Status

Tuner

CI

Decoder

Output

BISS

Mux

TS over IP

System

Mux

☐ Mux Enable

Out Bitrate(kbps) 50000

TS ID 1

Out Valid Bitrate(kbps) 0

Input TS (Sum: 2)

ASI1
 ASI2
 Tuner
 IP
 CI

>
<

Output TS (Sum: 0)

ASI1
 ASI2
 Tuner
 IP
 CI

Apply
Cancel

There are multiple different settings to configure on this menu:

Mux Switch: Select whether the internal multiplexer is On or Off.

Bit Rate: Set the stream bit rate. Be aware that it should be within the limits of the physical medium you're using otherwise overflows would occur.

TS Id: Set the TS ID to mark the multiplexed stream. The default value is 1.

Program List sub-menu: This sub-menu will allow you to create a list of programs to "pass" to the output. The programs could come from ASI inputs, Tuner, TS/IP or the Internal CI De-Encryption block. Using the "Mux List" sub menu select the programs to be multiplexed. All the selected programs are labeled "Pass", while the un-selected programs are labeled "Forbid". Use the ENTER pushbutton to select or un-select the programs. When you finish your selection press the EXIT pushbutton to exit the sub-menu. A confirmation message will ask to "Confirm changed?", press the ENTER pushbutton to save your changes or EXIT to leave without saving.

After a few seconds the multiplexed TS will be generated and can be used.

Configuring Ethernet Streaming

This will allow you to configure the TS/IP port on the UC-IRD+ as a Stream Source for another device.

NOTE: This option only will be available if it is enabled on System->Optional Function. All the other configurations must be done first (BISS, CI, and Input configurations).

UC-IRD+ - 192.168.0.60 - IP In

Style: White

Status		
Tuner		
CI		
Decoder		
Output		
BISS		
Mux		
TS over IP		
System		

IP In		
Multicast IP Address	16 . 16 . 16 . 16	
Multicast UDP Port	3000	
Stream IP Address	16 . 16 . 16 . 16	
Stream Netmask	255 . 255 . 255 . 0	
Stream Gateway	16 . 16 . 16 . 1	
Stream MAC Address	00:06:f4:1f:25:f6	
Protocol	UDP	
Smoothing	Auto	

Apply Cancel

There are multiple different settings to configure on this menu:

Stream IP Address: Enter the IP address assigned to your equipment TS/IP output.

Stream Netmask: Enter the network netmask for the IP address assigned to your equipment TS/IP output.

Stream Gateway: Enter the gateway address for the IP address assigned to your equipment TS/IP output.

Stream MAC Address: The Factory-Set MAC address assigned to the TS/IP port.

Gateway MAC Address: The MAC address of the configured Gateway.

Protocol: Set the protocol for multicast. The possible options are UDP or RTP.

TS Pkts per UDP: Set the number of the TS packets encapsulated in one UDP packet. Valid range is from 1 to 7.

Time to Live: Set the number of router hops over which the TS over IP can be delivered. The valid range is from 1 to 5.

Type of Service: Select the type of service. The possible options are: Normal, Min Monetary Cost, Max Reliability, Max Throughput or Min Delay.

Source: Select the source of the stream to be encapsulated over IP. There are 6 possible options:

1. ASI1 Input

2. ASI2 Input
3. CI De-Encrypted
4. TUNER
5. Mux TS (Only available if it is enabled)
6. BISS De-Encrypted

Mode: Select the mode of IP Streaming. The valid options are DVB or IPTV.

DVB Mode: The transport stream from the source will be directly sent as an IP stream. The IP stream will include all the programs and will be sent to the specified multicast or unicast IP Address.

IPTV Mode: The transport stream from the source is de-Muxed into individual programs and each one is packed into a different IP stream. Each IP stream carries only one program. There is a maximum of 6 IPTV channels allowed to be set.

Uni/Multicast Setup: This sub-menu will allow you to set the Unicast or Multicast settings. It offers different options depending on the mode selected.

For DVB Mode:

Multicast IP: Set the IP address of the TS over IP. It can be configured as a Multicast or Unicast stream.

To use multicast mode set the IP address within the Multicast IP range 224.0.0.0 to 239.255.255.255 as defined by RFC 5771.

To use Unicast mode use any valid IP address that is not in the range 224.0.0.0 to 239.255.255.255. When the IP address is set to an IP address outside of this range the stream will be Unicast even though the display shows "Multicast IP". In Unicast mode the IP address that is used is the one of the destination.

Multicast UDP Port: Enter the UDP port number of the TS over IP.

For IPTV Mode:

Max Channels (<=6): Set the number of IPTV channels. The valid range is from 0 to 6.

Once the number of channels is set, there will be a sub-menu for each channel. Each channel sub-menu has 4 options:

Channel x: Where "x" is the number of the channel

x-Switch: Set the channel On or Off.

x-Uni/Multicast IP IP: Set the IP address of the TS over IP. It can be configured as a Multicast or Unicast stream.

To use multicast mode set the IP address within the Multicast IP range 224.0.0.0 to 239.255.255.255 as defined by RFC 5771.

To use Unicast mode use any valid IP address that is not in the range 224.0.0.0 to 239.255.255.255. When the IP address is set to an IP address outside of this range the stream will be Unicast even though the display shows "Multicast IP". In Unicast mode the IP address that is used is the one of the destination.

x-Uni/Multicast Port: Set the UDP port number for the TS over IP

x-Program: Select the program to use from the previously selected source. Encrypted programs are labeled with a "\$" sign.

Device Information

UC-IRD+ - 192.168.0.60 - Device

Style: White

Status Tuner CI Decoder Output BISS Mux TS over IP System	Device Version Network Login NTP	
	Device Information	
	Unit Name	UC-IRD+
	Serial Number	pb25000490077
	Optional Function	
	External Board Type	100M Single In
	Mux Function	Enable
	Backup Function	Disable
	LCD Switch	Always On
	<input type="button" value="Apply"/> <input type="button" value="Cancel"/> <input type="button" value="Default"/> <input type="button" value="Reboot"/>	

Software Version

UC-IRD+ - 192.168.0.60 - Version

Style: White

Status Tuner CI Decoder Output BISS Mux TS over IP System	Device Version Network Login NTP			
	Version			
	Main Version	50PR0039	Web Version	0715
	Linux OS Version	22	FPGA Version	02
	ARM S/W Version	50	TS/IP In NIOS	8f
	Decoder Version	57	TS/IP In FPGA	8a

Network Configuration

UC-IRD+ - 192.168.0.60 - Network

Style: White

	<u>Device</u>	<u>Version</u>	<u>Network</u>	<u>Login</u>	<u>NTP</u>
Network					
Target Device					
Device IP	192	168	0	60	
Net Mask	255	255	255	0	
Gateway	192	168	2	1	
Mac Address	00:06:f4:1f:25:f5				
Alarm Setting					
Trap IP Address	192	168	0	70	
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>					

HTTP Login


UC-IRD+ - 192.168.0.60 - Login


Style: White

	<u>Device</u>	<u>Version</u>	<u>Network</u>	<u>Login</u>	<u>NTP</u>
Login					
Login ID	<input type="text"/>				
Login Password	<input type="password"/>				
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>					

Network Time Protocol Configuration

UC-IRD+ - 192.168.0.60 - NTP

Style: White 

Status	Device	Version	Network	Login	NTP
Tuner					
CI					
Decoder					
Output					
BISS					
Mux					
TS over IP					
System					
	NTP				
	NTP Server IP	<input type="text" value="10"/>	<input type="text" value="10"/>	<input type="text" value="10"/>	<input type="text" value="10"/>
	NTP Interval(S)	<input type="text" value="600"/>			
	Time Zone	<input type="text" value="GMT +0:00"/> 			
	Time				
	Date	1970/01/01 (YYYY/MM/DD)			
	Time	02:47:07 (24H)			
	<input type="button" value="Apply"/> <input type="button" value="Cancel"/>				